

## CLAIMS

1. A method for manufacturing a post-crosslinkable thermoplastic resin comprising polymerizing a polymerizable composition (A) by bulk polymerization, the 5 polymerizable composition (A) comprising:

(I) a monomer solution containing 10 wt% or more, based on the total amount of monomers, of a cycloolefin (α) which has two or more metathesis ring-opening reaction sites in the molecule, or a monomer solution containing a norbornene monomer and a crosslinking agent,

10 (II) a metathesis polymerization catalyst, and  
(III) a chain transfer agent.

2. A method for manufacturing a post-crosslinkable thermoplastic resin comprising polymerizing a polymerizable composition (A) which comprises a monomer solution containing 10 wt% or more, based on the total amount of monomers, of a 15 cycloolefin (α) which has two or more metathesis ring-opening reaction sites in the molecule, a metathesis polymerization catalyst, and a chain transfer agent by bulk polymerization.

20 3. A method for manufacturing a post-crosslinkable thermoplastic resin comprising polymerizing a polymerizable composition (A) comprising a norbornene monomer, a metathesis polymerization catalyst, a chain transfer agent, and a crosslinking agent by bulk polymerization.

4. The method according to any one of claims 1-3, wherein the maximum temperature during the bulk polymerization is less than 230°C.

25 5. The method according to any one of claims 1-4, wherein the polymerization conversion ratio is 80% or more.

6. The method according to any one of claims 1-5, wherein the chain transfer agent is a compound represented by the formula  $\text{CH}_2=\text{CH-Q}$ , wherein Q is a group

which has at least one group selected from the group consisting of a methacryloyl group, acryloyl group, vinyl silyl group, epoxy group, and amino group.

7. The method according to any one of claims 1, 2, 4, 5, or 6, wherein the cycloolefin ( $\alpha$ ) is dicyclopentadiene.

5 8. The method according to any one of claims 1, 3, 4, 5, or 6, wherein the norbornene monomer is a mixture containing a norbornene monomer having a carboxyl group or an acid anhydride group and the crosslinking agent is an epoxy compound.

10 9. The method according to any one of claims 1, 3, 4, 5, 6, or 8, wherein the crosslinking agent is a radical generating agent and the polymerizable composition (A) is polymerized by bulk polymerization at a reaction temperature below the one-minute half-life temperature of the radical generating agent.

10 10. The method according to claim 9, wherein the polymerizable composition (A) further comprises a radical crosslinking retarder.

15 11. A post-crosslinkable thermoplastic resin produced by the method according to any one of claims 1 to 10.

12. The thermoplastic resin according to claim 11, wherein the thermoplastic resin is molded into a film by polymerizing the polymerizable composition (A) on a supporting body by the bulk polymerization.

20 13. The thermoplastic resin according to claim 12, wherein the supporting body is a metal foil or a resin film.

14. The thermoplastic resin according to claim 11, wherein the thermoplastic resin is molded into a prescribed form by polymerizing the polymerizable composition (A) in a mold by the bulk polymerization.

25 15. The thermoplastic resin according to claim 11, obtained by impregnating a textile material with the polymerizable composition (A) and polymerizing the polymerizable composition (A) by bulk polymerization.

16. A method for producing a crosslinked thermoplastic resin comprising

crosslinking the thermoplastic resin according to any one of claims 11-15.

17. A method for producing a crosslinked resin composite material comprising a step of laminating the thermoplastic resin according to any one of claims 11-15 on a substrate and crosslinking the thermoplastic resin portion.

5 18. The method according to claim 17, wherein the substrate is a metal foil.

19. The method according to claim 18, wherein the metal foil is previously treated with a silane coupling agent of the following formula (1) or a thiol coupling agent of the following formula (2),

RSiXYZ (1)

10 T(SH)<sub>n</sub> (2)

wherein R is a group having a double bond, a mercapto group, or an amino group at the terminal, X and Y individually represent a hydrolyzable group, a hydroxyl group, or an alkyl group, Z represents a hydrolyzable group or a hydroxyl group, T represents an aromatic ring, an aliphatic ring, a heterocyclic, or an aliphatic chain, and n is an integer of 2 or more.

15 20. The method according to claim 17, wherein the substrate is a printed circuit board.